

Remarks

Claims 1-5, 10-15 and 18-23 are pending in the application.

Finality of rejection should be withdrawn

The Office Action mailed September 29, 2006 is final, and indicates that claims 1-17 are pending. For the second time, the Applicant respectfully draws to the Examiner's attention to the **RCE filed January 10, 2006**, in which claims 6-9, 16 and 17 were canceled and claims 18-23 were added. Claims 18-23 were never acted on by the Examiner. Accordingly, the finality of the Office Action should be withdrawn, and the Applicant should receive an Action on claims 18-23.

Claim rejections

Section 103

Claims 1-12 and 16 were rejected under 35 USC 103(a) as being unpatentable over Hays, Jr. et al. (US Patent No. 4,354,227) ("Hays") in view of Forman et al. (US 5,544,353). Of these claims, claims 1-5, 10 and 12 remain pending. The Applicant respectfully traverses the rejection.

Neither Hays and Forman discloses multiple levels of control.

The present claims call for control of access to shared resources at multiple levels:

- (1) A semaphore that controls access to a resource descriptor
- (2) A resource descriptor that enables particular resources to be reserved

As explained in the present specification, one advantage of the invention having the above features is that the problem of "thrashing" is eliminated since, rather than having to serially obtain locks on semaphores for individual resources, a logical processor can instead obtain a lock via the semaphore to the resource descriptor. Then, the logical processor can determine whether all the resources it needs are available, and if so, reserve all of them, by querying and updating a single data field, i.e., the resource descriptor.

Hays and Forman are completely silent to the above features, and only disclose reservation of a resource at a *single level*. Hays relates to a system having “complementarily phased cycles,” where two processors compete for access to a common random access memory. The method disclosed in Hays involves writing a given processor’s ID to a register in one clock cycle in an effort to reserve the memory, and then checking in a later clock cycle for whether in fact the memory has been successfully reserved. See, e.g., col. 6, lines 3-11. The problem that Hays is purported to address is specific to complementarily phased cycle systems; i.e., Hays observes that in the prior art of complementarily phased cycle systems,

“no processor can be guaranteed sole access to a common storage location utilized for controlling access to the common shared resource (because the first phase of the clock cycle grants access to a first processor while the second phase of the same clock cycle may grant access to another processor before the first processor can “lock up” the resource on the next first phase of the ensuing clock cycle) ... ,” (col. 2, lines 9-17)

and therefore proposes “an additional wait cycle ... to allow all these potential contenders to complete the writing process” (col. 2, lines 38-40). Thus, Hays relates essentially to a timing issue, and is not at all concerned with multiple levels of control of resources as in the present invention.

Forman is similarly silent regarding multiple levels of control. The object of Forman is “to improve master process efficiency by reducing the length of time exclusive control over a master process indicator is required” (col. 2, lines 54-56). To this end, Forman relates to processes “‘racing’ for control of a resource” (col. 4, line 17). A process gets control of a resource by either creating or updating a shared control file, and becoming “master” of the control file. The invention of Forman purportedly achieves its object by removing the limitation that the master retain exclusive write access to the control file by “allowing the master to release the exclusive write mode while still being the master process for that resource.” See col. 4, lines 54-56.

In view of the above, it is clear that neither Hays nor Forman contains any suggestion of multiple levels of control of a resource as in the present invention.

Accordingly, the combination of Hays and Forman cannot yield the features of the claims. Moreover, there is no motivation for the combination of Hays and Forman, since they address different objects in different ways, and neither adds anything to the other in furtherance of their particular objects.

Response to argument.

In the section titled "Response to the argument," the Office Action contends that

"Forman explicitly teaches obtaining a lock on a semaphore controlling exclusive access to a resource descriptor if said lock is obtained (if access is denied ... resource file is locked and access by other processor), waiting and retrying until exclusive access to file is obtained, col. 6, lines 9-11). It is obvious that it using the semaphore method to control and allow accessing to share resource file one at the time)."

In response, it is observed that the Applicant is not attempting to argue that the prior art does not disclose semaphores or exclusive reservation of resources. However, the Applicant *is* arguing that the prior art does not disclose (1) a semaphore that controls access to a (2) resource descriptor that controls access to shared resources. When the Office Action says that "Forman explicitly teaches obtaining a lock on a semaphore controlling exclusive access to a resource descriptor," this is, respectfully, incorrect. As discussed above, Forman merely discloses obtaining exclusive write access, directly, to a resource itself. The resource is not part of a mechanism for reserving resources, like the resource descriptor of the present invention.

All of the independent claims recite elements for multiple levels of control. Claim 1 recites "obtaining a lock on a semaphore controlling exclusive access to a resource descriptor, the resource descriptor describing a usage allocation of resources shared among a plurality of logical processors" and "obtaining exclusive access for said first logical processor to said resource descriptor if said lock is obtained." Independent claim 10 recites "a resource descriptor to identify a status of said shared resources; and a semaphore to reserve exclusive access for one of said plurality of logical processors to said resource descriptor." Independent claim 13 recites "setting a lock bit in a semaphore register to reserve exclusive access to a resource descriptor register" and "applying said first bitmap to said resource descriptor register to reserve said first

required resource.” Independent claim 18 recites “a resource descriptor to control access to said resources” and “a semaphore register to reserve exclusive access for one of said plurality of logical processors to said resource descriptor.”

In view of the above, withdrawal of the asserted rejection is respectfully requested.

Claim 17 was rejected under 35 USC 103(a) as being unpatentable over Hays and Forman, and further in view of Scalzi et al. (US 5,895,494). Claim 17 has been canceled.

Claims 13-15 were rejected under 35 USC 103(a) as being unpatentable over Hays and Forman, and further in view of Florek (US 6,795,901). The Applicant respectfully traverses. As noted above, independent claim 13 is allowable over Hays and Forman for at least the reason that it recites “setting a lock bit in a semaphore register to reserve exclusive access to a resource descriptor register” and “applying said first bitmap to said resource descriptor register to reserve said first required resource,” and thus, multiple levels of control that are absent from Hays and Forman. Florek does not remedy the deficiencies in Hays and Forman. Withdrawal of the asserted rejection is therefore respectfully requested.

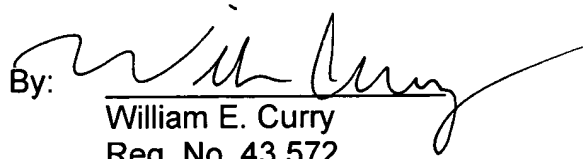
Conclusion

In light of the above discussion, Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4323 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

Dated: NOV. 15, 2006

By: 
William E. Curry
Reg. No. 43,572

KENYON & KENYON LLP
1500 K Street, N.W., Suite 700
Washington, D.C. 20005
Tel: (202) 220-4200
Fax: (202) 220-4201